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Exploring Barriers and Facilitators of Group Antenatal Care Implementation in Kaduna State, Nigeria: A Qualitative Evaluation

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Research Article

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Abstract

Background: Poor access to antenatal care (ANC), skilled birth attendance, and postnatal care services contribute to high maternal and infant mortalities in Nigeria. Traditional ANC model has limitations especially in low resource settings. Group antenatal care (G-ANC) offers an alternative, combining clinical assessments with group discussions, information sharing, self-testing and peer support. This model has proven successful in various countries. This paper evaluated facilitators, barriers and the sustainability of the G-ANC program in Kaduna State, Nigeria, through a qualitative assessment of its implementation and outcomes.

Methods: A descriptive exploratory study was conducted using qualitative methods. Data were collected through structured interview guides via 24 focus group discussions (FGDs) and 20 key informant interviews (KIIs). The sampling frame included health facilities implementing G-ANC, stratified by Senatorial Districts (SDs) and urban/rural locations. Two local government areas (LGAs) (one rural, one urban) were selected per SD, with two health facilities chosen from each, totaling 12 facilities. Purposive sampling recruited participants for FGDs with postpartum women (≤25 years and >25 years), male partners, healthcare workers, and community mobilizers (6–8 participants per group). Trained staff conducted the sessions, and data analysis was performed using ATLAS.ti (v22).

Results: Implementation was shaped by logistical, cultural and systemic factors. Long distances to health facilities, inadequate human resources and inadequate infrastructure among others limited access for many women. Delays in forming cohorts, payment of ANC services and insufficient equipment further hindered service delivery. Cultural norms, such as male dominance

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and traditional beliefs favoring home deliveries, also posed challenges. Despite these barriers, strong government support, effective community mobilization and inclusive communication tools among others facilitated success. Male involvement increased, with partners supporting antenatal care participation. Social bonding within groups fostered peer learning and sustained attendance.

Conclusion: G-ANC is a feasible, client-centered model for improving maternal and child health outcomes in resource-limited settings. While findings highlight the approach's potential to improve maternal and child health outcomes, challenges like insecurity, resource constraints, and systemic barriers must be addressed. Further research is needed to explore G-ANC's applicability in diverse settings.

Keywords: Group Antenatal Care; Qualitative Evaluation; Kaduna State; ANC and Pregnant Women

Background

Nigeria, with a population of over 180 million people and 7 million live births/year, faces significant challenge in maternal and child health. The country has a high Maternal Mortality Ratio (MMR) of 512 deaths/100,000, an Infant Mortality Rate of 69 deaths per 1000 live births, and an U-5 Mortality Rate of 129 per 1,000 live births [1]. The 2018 Nigeria Demographic and Health Survey (DHS) revealed low levels of antenatal care (ANC) coverage (57% of pregnant women had four or more ANC visits), Intermittent Preventive Treatment for malaria in pregnancy (IPTp) uptake, facility delivery, and skilled delivery [2]. These already suboptimal maternal and child health (MCH) indicators before the COVID-19 pandemic, may have worsened due to disruptions in healthcare services, induced fear of infection and imposed mobility restrictions during the pandemic. Emerging evidence suggests that COVID-19 had exacerbated access challenges, likely worsening maternal and child health outcomes in Nigeria [3-6]. Poor access to and uptake of essential health services has contributed to sub-optimum improvements in neonatal and child health (MNCH) outcomes in Sub-Saharan Africa [7].

Kaduna State, located in northwest Nigeria, faces a similar challenge of high MMR at 402 per 100, 000 live births [8], compared to the SDG target of less than 70 per 100, 000 live births, while only 70.3% of pregnant women attended at least four ANC visits, and about half of all deliveries had skilled birth attendance [9]. Uptake of postnatal care services (PNC) and immunization coverage among children less than 1 year of age also have not recorded significant improvements and less than half of children less than 6 months were exclusively breastfed [9]. In 2016, the World Health Organization (WHO) released new recommendations on ANC that prioritize "person-centered care" for better health and well-being [10]. Communication and support during ANC visits were identified as crucial to enhancing the quality of care and utilization of health care services [10]. Group ANC (G-ANC) has been documented as a feasible and effective model for delivering ANC in low- and middle-income countries, particularly among communities living in vulnerable conditions [11].

Group Antenatal Care (G-ANC) is an innovative model of care that combines traditional individual antenatal visits with group-based care, which involves three core components: **clinical assessment, interactive learning, and peer support.** In this model, women with similar gestational ages meet regularly in groups, where they receive individualized clinical care from a healthcare provider, participate in facilitated discussions about pregnancy-related topics, and build a supportive community with their peers. Within group care, eight to twelve women and their partners meet up during pregnancy or after birth with their baby for all medical and psycho-social care, during the first 1000 days, sharing experiences and learning from each other. This approach has been shown to improve maternal and neonatal outcomes by enhancing the quality of care, increasing engagement, and fostering a sense of empowerment among participants [12].

Centre for Integrated Health Programs (CIHP), with funding from the Bill & Melinda Gates Foundation (BMGF) through Technical Advice Connect (TAConnect), supported the Kaduna State Government in Nigeria to adapt, implement, and sustain G-ANC as a service delivery alternative to the conventional individual antenatal care model. The goal of the project was to provide technical assistance to Kaduna State government to successfully integrate G-ANC into their healthcare system. The G-ANC project was implemented from January 2020 to April 2022 in two phases: Phase1 engaged 255 primary health care (PHC) facilities, while phase 2 expanded the program to include an additional 230 facilities, totaling 485 PHC facilities. By the end of the project, Kaduna State had adopted the G-ANC as the preferred model of antenatal, citing early successes such as improved ANC attendance, increased facility deliveries by skilled birth attendants and improved postnatal care

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services. These successes were highlighted at the National Council for Health in Abuja, advocating for G-ANC's national adoption. In response, Kaduna State updated its 2021 ANC policy to include G-ANC and incorporated G-ANC activities into the State Health Annual Operational Plans. Additionally, the State Ministry of Health (SMOH) allocated budgetary resources for the procurement of G-ANC equipment and supplies, and integrated G-ANC into their Life Saving Skills (LSS) and Modified Life Saving Skills (MLSS) training programs.

Evaluation Objectives

- To understand the facilitators and barriers of G-ANC implementation and how future programs can be improved.
- To evaluate the sustainability of the G-ANC approach in Kaduna State.
- This paper documents these findings as part of an end line evaluation conducted for the project.

Evaluation Questions

Three Major key questions were needed to understand the G-ANC project in relation to the objectives.

- What were the barriers and facilitators of implementing the G-ANC project?
- How satisfied were the participants with the G-ANC project?
- What sustainability measures are put in place to continue the G-ANC project?

Project Location

Kaduna State is in the Northwest part of Nigeria and comprises 23 local government areas (LGA) with an estimated population of 8,900,000 [13]. Seventy-six percent (76%) of the population lives in rural areas and are concentrated in 19 LGAs. Most of the LGAs in the state are affected by high levels of insecurity with frequent attacks by bandits on communities. The insecurity potentially limits uptake of health services, including ANC services by pregnant women.

Methods

Study Design

A qualitative, interview-based study design was used to explore the barriers and facilitators of the G-ANC program in Kaduna State. This qualitative method involved the use of focus group discussions (FGDs) and key informant interviews (KIIs) to develop constructs and themes related to the objectives of the study through the perceptions of the participants.

Stakeholders (Participants) Inclusion Criteria

- Women, who were pregnant, attended at least one G-ANC session in the participating health facilities.
- Male spouses of the pregnant women identified above.
- Health care providers (HCW), representatives of other MNCH implementing partners, and policy makers from the state ministry of health (SMoH), and state primary health care board (SPHCB).
- Community Health Influencers and Promoters (CHIP)/ Community mobilizers.
- Ward Development Chairperson (WDC)

Sampling Procedure and Recruitment

A sampling frame of all health facilities implementing G-ANC was used, stratified by Senatorial Districts (SD) and urban/rural locations. Two local government areas (one rural, one urban) were selected from each SD, and then two health facilities were chosen within each selected LGA. Based on the inclusion criteria, purposive sampling was used to recruit participants. FGDs were conducted among postpartum women in two age categories (<= 25 years and >25 years), male partners/spouses, health care workers, and community mobilizers, with six to eight participants in each FGD group. Participants were recruited by HCWs from the records in the health facilities to identify age-eligible clients who have attended at least one G-ANC session at the time of the evaluation. HCWs reached out directly to these clients, inviting them to participate in the FGDs. The discussions took place in a designated space within the health center, chosen for its familiarity and convenience, providing a comfortable environment for all participants.

KII was conducted among Kaduna State Ministry of Health (SMOH), State Primary Health Care Board (SPHCB) officials, representatives of implementing partners, community members which include the WDC and the community mobilizers. A total of 24 FGDs and 20 KIIs were conducted by trained project staff. The sample sizes were considered to be sufficient to reach data saturation [14].

Data Collection

FGDs and KIIs were conducted using topic guides specifically developed to assess the participants' perceptions towards G-ANC program implementation, acceptability, facilitators, barriers, sustainability, and satisfaction. These guides were designed by a qualitative data expert, drawing on prior research and tailored to meet the study's objectives. Separate FGD guides were developed for pregnant women and their male partners focusing on four key themes: barriers, benefits, satisfaction and sustainability while the KII guide, developed for key stakeholders, covered themes

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such as benefits, barriers, effectiveness, and sustainability. The data collection tools for FGDs were pretested in selected health facilities to ensure cultural sensitivity and relevance, with feedback incorporated into the final versions. For non-English speaking participants, the FGD guides were translated into the local language by an expert translator with the state government. Each FGD session was conducted by two locally trained data collectors-a moderator and a note-taker-in the language most comfortable for the participants. They conducted FGDs within the health facility premises, however in a private area to encourage participants to speak freely. KIIs were conducted in the offices of policy makers which include directors that work in the RMNCAH field, Monitoring and Evaluation officers, ward development chair persons at the community, other implementing partners working in the field of reproductive health. With consent from participants, data were collected and recorded using digital audio recorders. Data collection for participants lasted for a maximum of 45 minutes for the KIIs and 90 minutes for the FGDs. To ensure confidentiality, the digital recordings were securely uploaded to a SharePoint cloud space, accessible only to authorized staff. Strict confidentiality protocols such as anonymization of patient identifiers during transcription and secure storage of the recordings were observed. The recordings were transcribed and translated manually into English by trained local research assistants.

Ethical Considerations

Ethical approval with protocol number MOH/ADM/744/VOL.1/924 was obtained from the Kaduna State Ministry of Health. Informed consent was obtained from all participants for both the FGDs and KIIs. All consenting participants were interviewed for data collection. Data (including audio recordings) were safely stored in locked cabinets while the transcripts were stored and encrypted with passwords on the SharePoint server for a maximum of 1year. Participants data were presented anonymously using pseudonyms, with no references to personal identifiers.

Results

Socio-demographics of Participants

Below is a table representing the socio-demographics of participants in the FGDs and KIIs, organized by category and disaggregated by type, Nos and Total Participants (Table 1).

Participant Category	Type	Nos of (FGD/KII)	Total Participants
Postpartum women	FGD	12	72
Male Partners	FGD	6	36
CHIPS/Community Mobilizers	FGD	6	36
Ministry of Health (MOH)	KII	2	2
Health Facility in -charge	KII	6	6
G-ANC Health care workers	FGD	6	6
Other Implementing Partners	KII	2	36
Ward Development Chairpersons (WDC)	KII	4	4
Civil Society Organizations (CSO)	KII	4	4

Table 1: The socio-demographics of participants in the FGDs and KIIs.

Data Management

Analysis was done using ATLAS. ti (Version 22) software. All audio recordings were translated, transcribed, coded, and analyzed using thematic-content analysis. A codebook was developed based on themes and sub-themes identified by a qualitative data expert through content analysis based on the outputs from the transcripts. This codebook was then used by the expert for inductive coding of all other documents with iterative identification of new themes or sub-themes. The selected quotes from FGDs and KIIs are presented to illustrate the final findings in four main themes (barriers, facilitators, satisfaction, and sustainability) of the G-ANC program implementation.

The G-ANC project in Kaduna state was described as largely successful, however a few barriers were noted. During analysis, several themes emerged for barriers and facilitators to the project. During the analysis, several themes emerged as barriers and facilitators to the G-ANC project. Barriers refer to factors that hindered the successful implementation of the G-ANC program. For example, participants were asked, *"Are there factors that could prevent pregnant women from attending services in the health facility with this new method of ANC?"* This question helped identify specific challenges such as distance to health facilities, shortage of staff and functional equipment, payment for ANC services, and the lack of adequate and secured facility space to implement

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the G-ANC program. Probes included aspects like healthcare worker attitude, duration of stay in the health facility, and peer-to-peer learning experiences.

Some of the identified barriers mentioned include:

- Distance to Health Facilities.
- Delay in access to services.
- Shortage of Staff and Functional Equipment.
- Payment for ANC services.
- Lack of adequate and secured facility space to implement the G-ANC program.
- Cultural Norms

Distance to health facilities offering G-ANC and delay in starting G-ANC sessions: Distance to health facilities offering G-ANC and delays in starting sessions were identified as barriers to G-ANC uptake. Many clients noted that the project was only available in selected facilities, making access difficult. Additionally, G-ANC requires clients to be aggregated before starting; causing early arrivals to experience longer wait times, which discouraged some from attending.

"Number one barrier is distance… because it is a very big community there are women that are out there but for them to come out to the facility [is difficult]… [Because of the] location of the facility". ***(Health Care Worker)***

*"I believe these tie to the availability of the facility itself: how close is it to the women? how much do they have to spend on transportation? A pregnant woman wouldn't want to be driven over very bad roads or having to ride on a motorcycle through streams". (****Implementing Partner).***

"Transport is key, not that I don't want to go to the hospital or I don't like coming here but I don't have money so transportation is one thing that usually restrict me from coming". ***(< 25year Old pregnant woman).***

Shortage of staff and functional equipment: There was an increased burden in coordinating multiple G-ANC sessions for different cohorts of women due to shortage of staff, inadequacy of equipment, and turnaround time for maintenance of damaged equipment, particularly blood pressure monitoring devices and weighing scales.

"I think they [Kaduna state] are just having [a general] lack of that human resource and financial [challenges], because the G-ANC as sweet and simple as it sounds is bulky and cumbersome and can get hectic, here we are having shortage of man-power because it is just one person that is taking all the women here for G-ANC." ***(Health Care Worker)***

"I don't know, is it that there are no workers there or is it the condition of the antenatal grouping that made it like that? It's really hectic for her [ANC in-charge], when we come she's the one that will do this, do this, do this, her alone!" ***(≥25-year-old pregnant woman)***

"I think the way we are doing it here, we have lack of instruments. Most especially our sphygmomanometer, we don't have enough that awe're using for the women, I think that's what is taking much of our time because we have to wait for this cohort to finish before going to another cohort" ***(Health Care worker)***

Payment for ANC services: The need to pay for some services was seen as a barrier to retention in G-ANC as indicated in the quote below. Services like gloves for delivery, booking card and some laboratory services were required for clients to pay. While other incentives like free medications are provided at no cost, which is typical of state-led programs.

"For good care, you need disinfectant, you need gloves, you need some things the women will use and take care of the baby too. All these thing are not free in the facility. So, we'll have to tell these patients to buy or get their partners to help and buy these things". ***(Community Mobilizer)***

Lack of adequate and secured facility space for G-ANC: *Space constraints during concurrent G-ANC sessions for different cohorts of women was noted as an issue. Also, the inability to run round-the-clock services, particularly for delivery service, due to general insecurity in Kaduna state, was also a barrier to ensuring appropriate linkage of the G-ANC program to other RMNCH, especially, delivery, services.*

"Now, with the G-ANC, we are having large number of deliveries, and so there isn't enough space [because] the facility is small for us. We are calling for an expansion… so let the NGOs help us expand our facility... We also need fence for security". ***(Health Care Worker)***.

"The issue with this facility-based delivery is the 24-hour services. It is an issue due to insecurity. Because where they have enough staff to run shift, they are afraid of being kidnapped or being raped by bandits… and if a pregnant woman comes to the facility in the night that she wants to deliver, if she does not meet anybody available, she will go back and deliver at home." ***(Civil society organization).***

Cultural norms related to male spousal control*:* Negative cultural perceptions of antenatal services, including male partners' perception that the encouragement of their wives to attend ANC is an affront on their authority, still exist but minimally affected project implementation. In addition, some beliefs still persist that women can deliver at home and need not go to the hospital for delivery.

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"I told you before, culture still hinder the access to this program. Some people inherit this culture from their families." ***(Ward Development Chairperson)***

"Some of these barriers are cultural because [for] some, it's not in their culture for women to go to the hospital. [They feel] their forefathers lived without going to hospitals and they lived safely, and some see it as a taboo to go to the hospital." ***(Community Mobilizer)***

"I think culture plays a critical role, especially in this part of Nigeria. A woman takes decisions [instructions] completely from the husband, so the decision making does not lie with the woman. Culture has a serious impact on the uptake of antenatal care in Kaduna state, especially in the Northern part of Kaduna state". ***(Ministry of Health)***

"Like me, the disadvantage I see [in the G-ANC program] is getting my wives attention. Most times it is an issue because I want to do something with her and they will tell me that she is called upon in the hospital, so I find it difficult". ***(Male Partner)***

Lack of integrated data tool for G-ANC: A challenge also noted was that the existing national health management information system tools were not designed to accommodate the cohort-based system introduced by G-ANC. Therefore, monitoring activities were still based on previous data aggregation tools.

"The other bit is the use of a lot of pages of the ANC register for group antenatal care and this is because of the cohorting system. I think there should be a lot more effort towards full integration of G-ANC into mainstream antenatal care [reporting]". ***(Implementing Partner)***

"I will talk on the data generation aspect, where I am particular about and I play a major role. After the last review and update of the NHMIS tools, that's version 2019, so we find it difficult to integrate these [G-ANC] indicators into the DHIS tool, because NHMIS version 2019 did not take most of the indicators of this G-ANC. For instance, the cohorts system – there is nothing like cohort when generating information in the antenatal register as well as the DHIS tool" ***(Ministry of Health)***.

Facilitators of the G-ANC Program Implementation

Facilitators refer to the factors that contributed to the successful implementation of the G-ANC program. In Kaduna State, several key facilitators were identified:

Successful Stakeholder Engagement and Government Support

Strong support and buy-in from policymakers and the state government were critical. The willingness of the authorities to accept change significantly contributed to the project's success.

"The willingness of the state, of the authorities, to accept something different, accept change, I think that's significant to the success of the project in Kaduna State. There's also the fact that, like it or not, there's a need and the project came to meet that need." – **(Implementing Partner)**

Community Mobilization and Structured Implementation

An effective community-based structure for mobilizing clients and a well-organized implementation plan played a crucial role in the program's success.

"The people that brought up the idea of G-ANC program really thought well and they did the needful... provision of reading materials ensuring proper training of the people who render these services, timely supervision, [and] unwavering way of addressing certain issues have really helped this G-ANC." ***-(Health care worker)***

Capacity Building of Health Workers

Capacity building activities for health workers led to noticeable improvements in provider attitudes towards respectful maternal care, which helped drive referrals and attendance at ANC.

"I think the project did a lot in [terms of] the capacity building of healthcare workers in appointed facilities. Those are some of the enablers of success that, if they are not put in place, the intervention might not be seen as fully successful." – ***(Implementing Partner)***

Improved Healthcare Worker Attitudes

Enhanced training led to significant changes in how healthcare workers treated clients, fostering a more respectful and supportive environment for maternal care.

"They [G-ANC service providers] have started doing well, in terms of the staff attitudes towards women delivering. Maybe they did some things to them [because before] some even beat the woman trying to deliver. So this was actually disturbing, but what they try to do now is open [and respectful] if a woman wants to deliver." ***- (Ward development Chairperson)***

Increased Client Engagement and Satisfaction

The group setting encouraged more active participation and a willingness among healthcare workers to go the extra mile in educating clients.

"Honestly, there are differences. Before, there is nothing like group and they [HCW] feel reluctant to teach you. But now that we are in group, they are very happy to teach us and sometimes

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they go extra miles to tell us things that will be beneficial to us." **– (≥ 25-year-old pregnant woman)**

Use of Innovative and interactive G-ANC home-based tools: For the G-ANC clients, pictorial home-based records were highly effective in encouraging antenatal attendance as they could track the progress of their pregnancy, expectations, and corresponding G-ANC activities. The pictorial nature of the booklet was also helpful for illiterate and low-literacy clients.

"The first time I came and got the booklet and took it home [to] my neighbor, she is done giving birth, and explained to her everything we discussed here, she felt it and said to me they never had such experience during their time. She said she has no idea about all the things I was telling her and she told me she feels like giving birth again!" ***(≥ 25-year- old pregnant woman)***

"I know three women that go to general [hospital] for their antenatal and their reasons is that there are midwives there. I called them and explained to them using these booklets, and I told them they will gain more there [at G-ANC supported facility]. When I brought them, they were thanking me, two out of the three gave birth here, one has a CS operation". ***(≥ 25-year-old pregnant woman)***

The mother booklet that the participants use became something they also use at home to involve their husbands, their husbands will know what they're doing in the facility and the husband will also be able to follow up on the next visit. ***(Ministry of Health)***

Increased spousal involvement and support: The participants suggested that spousal support for and male involvement in antenatal care activities increased during the G-ANC implementation as men got more enlightened and interested in ANC. This was a factor that improved ANC attendance by pregnant women.

"My own is this book that they shared. There are some stingy husband that there some things that you need it as a pregnant woman, they will not provide it for you, so when they give you in the hospital, they enlighten you, you take it home and you call your husband attention and you explained to him, a man that have understanding he will assist you there, so I think it will encourage them." ***(≥ 25-year-old pregnant woman)***

"The program is good for our women because when they take in, they are taken care of and after delivery the same thing and they also tell them to wait till after six month before they [infant] are able to take something. Sincerely, this program is good and we are happy about it because it helps our kids". ***(Male Partner)***

"Our women are able to teach each other based on what they have already learnt here because whenever they come back home I will over hear them saying this is what we were taught." ***(Male Partner)***

"I could remember it happened to me like this we argued with my wife to the extent that I wanted to stop her from going to the hospital but when I see the changes I now realized that this one is better than all other so I was happy about that and I saw changes in how some things were done". ***(Male Partner)***

"With the G-ANC, men are deeply involved. You know, you see women going to the G-ANC encouraging their women to even attend the G-ANC. We had a couple that came, it's her husband that encourages her to attend the G-ANC and she saw the benefits of attending". ***(Ministry of Health)***

Social bonding among enrolled pregnant women: The active participation of pregnant women, and the social bonds created by the G-ANC model were significant motivators for G-ANC attendance. G-ANC clients described having a sense of belonging and a positive experience.

"Those that participate in Group-ANC they were very excited. They say 'Ha! We are doing it ourselves'. That is especially during the self-assessment and the cohorting to discuss issues. Even the take-home booklet that they will carry and go home to discuss with their spouses, members or relatives in the community gives them that courage to discuss with those that have not enrolled in the ANC. It helps them to say 'This new thing that has come, come and register in a facility so that all will be well with you" ***(Civil Society Organization)***

"[Before], there was nothing like information sharing among the pregnant women, but with the help of this group ANC, you see them sharing information among themselves". ***(Ministry of Health)***

"Compared to before, you may not know what the nurses are doing but now we know and also do some of the things they show us. At first, I was surprised, I thought they wanted to employ us is why they are teaching us these things". ***(≥ 25-year-old pregnant woman)***

Previously you just come in and seat down, you don't even know anybody's name but now that we are grouped and everyone has their partner, when you come in and sight your partner you will go and seat next to your partner, you know your partner's name and if your partner has any problem you discuss it between yourselves. You can advise your partner on things to stop doing and things to do, but previously, you just come and seat, you leave when they are done attending to you. ***(≥ 25-year-old pregnant woman)***

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*I think because I enjoyed the program here I also invited two people that have given birth in this very clinic. So after that they really appreciate me for it. . **(≥ 25-year-old pregnant woman)***

Reduced cost of antenatal care*:* G-ANC clients and providers noted the reduction in the cost of antenatal care due to the program. They perceived that this was helpful in the successful implementation of the project.

*The ANC cards, normally they used to pay money, but now it's free. They couldn't even obtain the services because of the card, even though it was #300. It hindered them from coming, not to talk of laboratory. So, the [free] card alone is motivating them now. **Health Care Worker***

*The first time I came for the antenatal, all I thought was the expenses of the money that I will pay… So, when I came,.. they talk to me that I have to [do lab] test which they are important for me and the baby, and they gave me the prices that I will pay. It wasn't as high as I expected. . **(≥ 25-year-old pregnant woman)***

Satisfaction with G-ANC Program Implementation

Overall, government representatives, providers, clients and their partners were satisfied with the implementation of the G-ANC program in Kaduna state. However, one government official expressed that the expected improvement in health indices attributable to the program are not yet observable.

*If you come to the G-ANC you'll be very happy. There's this woman I know who always frowns her face but when she started coming to G-ANC, she smiles for everyone now. Even if you just had a small fight with your husband, once you come here everything will change you'll become happy. **≤ 25-year-old woman***

*I'm happy because I've seen changes, when my wife gave birth, I saw her washing cloths and I was wondering what but she told me she Is feeling energized after giving birth which is as the result of what they are been taught.**-Male Partner***

*It's actually a very welcomed idea. Just of recent, a woman delivered in our compound who was actually attending this G-ANC and what really happened during her labour plan was something I can testify that if not because of G-ANC it would have been something else. **– Health Care Worker***

*Yes, it is an efficient strategy in the sense that we are seeing the results. We have had those testimonies, so it's an efficient model of care for pregnant women**.- Ministry Of Health***

*I'm still not very happy that we're not translating it to impact. For the kind of work that we're doing, our indices should be coming down and it's not and I'm wondering where the issue is. I don't know where the problem is, but although the recent Sustainable Development Goals have shown that we made some progress, but our households side, it didn't show very well. Let's see what happens as we move, maybe there's a lag.- **Ministry of Health.***

Sustainability of the G-ANC Program

Sustainability refers to the ability of the G-ANC program to continue functioning effectively over the long term, beyond the initial implementation phase, and without ongoing external support. In Kaduna State, sustainability is expected to involve state ownership, operationalization, and integration into the existing health system. Key elements include adequate government funding, continuous capacity building for healthcare providers, and maintaining necessary resources and infrastructure. For the G-ANC program to be sustainable, respondents suggested a more client centered approach in addition to state ownership and operationalization. A government representative opined that since G-ANC is less capital intensive in the long run compared to the traditional approach, government can handle it. However, a divergent opinion is that the state may not yet have the capacity to manage G-ANC implementation without partner support. Additionally, to reduce the burden of care on the facilities offering the service currently, training of all providers, and regular retraining, will be helpful to ensure that workload is reduced and each provider in the state is able to provide a similar level of care. Availability of program resources, such as equipment and referral forms, was also highlighted as a necessary facilitator of service delivery. On the demand side, voluntary community mobilizers noted that with more attention and tools given to them, they will help deepen G-ANC penetration, promotion and sustainability.

*I have not yet seen how G-ANC wants to transition into something permanent in the state, so my sense currently is that once the project ends everybody goes back to default,… has the state been properly capacitated to takeover? Even when the state takes over is there any mechanism in place to still track how sustainable the intervention is going to be?- **Implementing Partner***

*It can be sustained once there is patronization. If there is no patronage, then it will not be sustained. You people should also try your best in sensitizing people …. **-Ward Development Chairperson***

*For me aside the facilities, we need to be given special attention to enable us discharge our duties [in the community]. Sustainability is both in the facilities as well as the communities. **– Community mobilizer***

If all the staffs are trained, the work load will reduce because some will go to health clinic and they will have the

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same services. Right now, let's not forget that it's not all women that are having access to this G-ANC because other facilities are not rendering this care. Train all healthcare workers in all health facilities for sustainability to happen.- ***Healthcare worker***

To sustain this program I think the state government through the primary healthcare board should take charge of the program, actively participate, join hands with the NGO, CIHP. So [the state] is not inheriting more than she can handle so I will suggest that the government as a matter of urgency involve G-ANC as a program in the PHC system including in the annual budgetary plan and ensure that enough resources is allocated to that and ensure the resources are utilized judiciously. ***Health care worker***

Discussion

This qualitative evaluation aimed to examine the perceptions of beneficiaries, health care providers, community members, and the government of Kaduna State on the implementation of G-ANC in Kaduna state. This evaluation assessed the barriers and facilitators of G-ANC implementation and sought insights from stakeholders on their level of satisfaction with the project's implementation. Additionally, the evaluation aimed to determine the sustainability of GANC beyond the project-supported health facilities and after cessation of donor funding for the intervention. This study is among the first to review the barriers and facilitators to implementing G-ANC in Nigeria and its findings will provide crucial information for program managers and policy makers looking to start or scale G-ANC.

Respondents identified long distances from communities to selected primary healthcare facilities where G-ANC was implemented as one of the barriers. This finding is consistent with previous studies [15-18] that have also identified long distances to health facilities and unavailability of transport facilities as barriers to ANC services globally and Nigeria. HCWs also highlighted a closely related barrier, which was the long clinic times that pregnant women had to endure; despite arriving at the health facilities early, pregnant women are required to wait for other members of their cohort before G-ANC care services are provided. The long clinic wait times were both a perception and a reality highlighted by healthcare workers and clients. While it is true that waiting times exist in both traditional and G-ANC models, G-ANC requires women to wait for their entire cohort to arrive before starting care, which was seen as a barrier. However, unlike traditional care where waiting is often passive, the G-ANC model can utilize this time for community-building activities. During the wait, peer-to-peer learning, health education, and support group interactions could be facilitated, turning the wait time into a productive and engaging experience for the women.

Healthcare providers complained about having to coordinate multiple G-ANC cohort sessions, further increasing the work load on the inadequate human resource for health. Having multiple G-ANC sessions were hampered by inadequate numbers of clinical service items, especially weighing scales and blood pressure monitors. Inability to offer 24-hour services in the facilities due to lack of adequate human resources for health (HRH) meant that G-ANC benefits did not translate to hospital expected increase in hospital deliveries. One interesting finding was that pregnant women linked inadequate availability of HRH and limited operational hours of primary health centers, similar to low uptake of institutional deliveries among women participating in the G-ANC program. This is consistent with the findings of a scoping review of peer reviewed articles on HRH challenges and association with access to quality care for mothers and newborns [19]. Insecurity around communities where this project was implemented resulted in hospitals being unable to offer 24-hour services, which may have also reduced uptake of hospital deliveries. Space constraints in many of the participating health facilities was also identified as a barrier, which hampered simultaneous conduct of multiple G-ANC cohort sessions, resulting in longer clinic wait times for the women.

Socio-cultural norms that hinder the ability of women to make decisions for themselves are well documented from other studies and presented a barrier to the uptake of G-ANC. At the policy level, a key challenge to G-ANC is that the national health information management systems -NHMIS 2019, was designed to report traditional ANC thereby making it difficult to appropriately capture G-ANC activities without introducing new data management tools. Although the project team and the SPHCB managed to adapt existing NHMIS tools to adequately capture interventions, standardization of tools will be needed to ensure optimal monitoring and evaluation of G-ANC.

Despite the barriers and challenges highlighted above, our project identified facilitators to the adaptation and implementation of G-ANC in Kaduna State, Northwest Nigeria. Policymakers and program managers considering implementation of this approach to G-ANC should leverage these facilitators to enhance quality of service and improved health outcomes for pregnant women and their babies. A vital success factor identified in this project was engagement and buy-in of key stakeholders into all phases the G-ANC program design, implementation and monitoring. The State Ministry of Health, State Primary Health Care Board, the RH TWG, as well as community structures were duly sensitized and carried along throughout the G-ANC project cycle. Secondly, the G-ANC project was highly inclusive through adaptation of picture booklets, which provide information to all patients (regardless of educational status or literacy

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ability) on antenatal attendance, pregnancy monitoring, and other related quality of care activities. Another unique facilitator of the G-ANC program was the involvement of pregnant women's male partners in clinical activities and health education on ANC services. Successful recruitment of men as champions of ANC was one of the hallmarks on the G-ANC project. The positive experience among pregnant women from similar socio-cultural settings contributed immensely to sustained engagement in the G-ANC care intervention, as women were able to communicate with peers, carry out some of the services themselves (for instance weighing one another) and share experiences on addressing common pregnancy related challenges. The project also benefited from the free ANC services operationalized by the Kaduna State government as this initiative removed some of the financial barriers to uptake of ANC services generally.

Overall, there was generally a sense of satisfaction with the implementation of the project by key stakeholders, especially the beneficiaries and their spouses, health care providers, policymakers. While there was consensus on the effectiveness of the G-ANC program in improving uptake of MNCH services across implementing health facilities, some stakeholders have raised concerns about how efficient the program was in terms of resource management. The following quote from an official of the SPHCB expressed issues around efficiency:

"*Yes, I think it is effective not just efficient. I don't know how efficient it is but I think it is actually effective in the sense that it is helping us to achieve the set goal but how well we achieve that set goal which is the efficiency is what I cannot actually say".*

To enhance sustainability of the project, stakeholders identified a focus on key interventions at the policy and at the program implementation levels. Engagement of relevant government ministries, departments, and agencies are critical to ensure provision of adequate infrastructure, supplies and equipment as well as available human resource for health to maintain uptake of the G-ANC intervention and high quality MNCH services. Expanding the scope of HCWs competent in the delivery of G-ANC services also need to be prioritized to ensure all providers working in ANC are trained to reduce the burden on just a few personnel. Space constraints and other infrastructural upgrades of PHCs will be required to ensure smooth implementation of activities and reduce clinic wait times for the beneficiaries. It is therefore imperative that appropriate government agencies factor these additional considerations into its yearly health work planning and budgeting processes. Although the Kaduna state government offers free/ subsidized MNCH services through enrolment into the Basic Health Care Provision Fund (BHCPF), many implementing PHCs have not started enrolling women into the BHCPF consequently leading to high out of pocket expenditure by pregnant women on essential drugs and commodities.

Conclusion

The G-ANC project has provided insights on the feasibility of implementing a client/person-centered and client/person-involved approach to ANC in Nigeria. Findings must be interpreted in the context of some limitations. First, while some of the facilitators of G-ANC may be generalized to contiguous states in Northern Nigeria due to largely similar socio-cultural norms and practices, further research is needed to understand facilitators of G-ANC in other settings within and outside Nigeria. Secondly, this project prioritized the intervention in specific PHC facilities in Kaduna which benefitted from infrastructural upgrades and refurbishment from the Bill and Melinda Gates Foundation prior to deployment. Consequently, the positive experiences and facilitators elicited from the HCW and beneficiaries may have been influenced by these upgrades and may not necessarily be generalizable to regular unrenovated PHC facilities in Kaduna. Thirdly, the G-ANC project was exclusively implemented in PHC facilities; further research will be required to ascertain its feasibility in larger secondary and tertiary health facilities.

The barriers identified in this evaluation are similar to well documented barriers to ANC generally in Nigeria, further affirming evidence that individual, community and institutional level factors combine to influence uptake of ANC and utilization of skilled birth delivery services. Beneficiaries, HCWs, and policymakers were all generally satisfied with the G-ANC as a viable, effective alternative to the traditional approach to provision of ANC services. The perspectives, and recommendations of stakeholders on the facilitators, barriers to implementation of G-ANC in Kaduna as well as critical sustainability considerations are vital to policymakers and program managers planning to implement the G-ANC approach to improve MNCH service delivery and health outcomes for women and children.

Therefore, as part of plans for next steps for sustainability of the G-ANC model and improved health outcomes, scale up of the model to other regions and settings- including secondary and tertiary health facilities in Nigeria is highly recommended. Also, continuous advocacy for government ownership and funding by integrating the model into broader health policies and operational plans are crucial. Training and capacity-building efforts and initiatives to ensure consistency and quality in the program implementation should be enforced for widespread adoption.

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